CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter will exposed about the method of conducting the experiment that related to this study. It starts with identification of the problem and then finding the basic properties of the kaolin clay and PP. Since PP does not absorb water, there is only two basic properties that was done towards this plastic. The flow of this methodology were shown in Figure 3.1. A correct way to carry out the test need to be considered because the output of the results may be used in the daily lives. Furthermore, to ensure that the test was conducted correctly, many review on the articles, books and social media has been explore. This review will be used while conducting the test in the laboratory along with the help from the laboratory assistant.

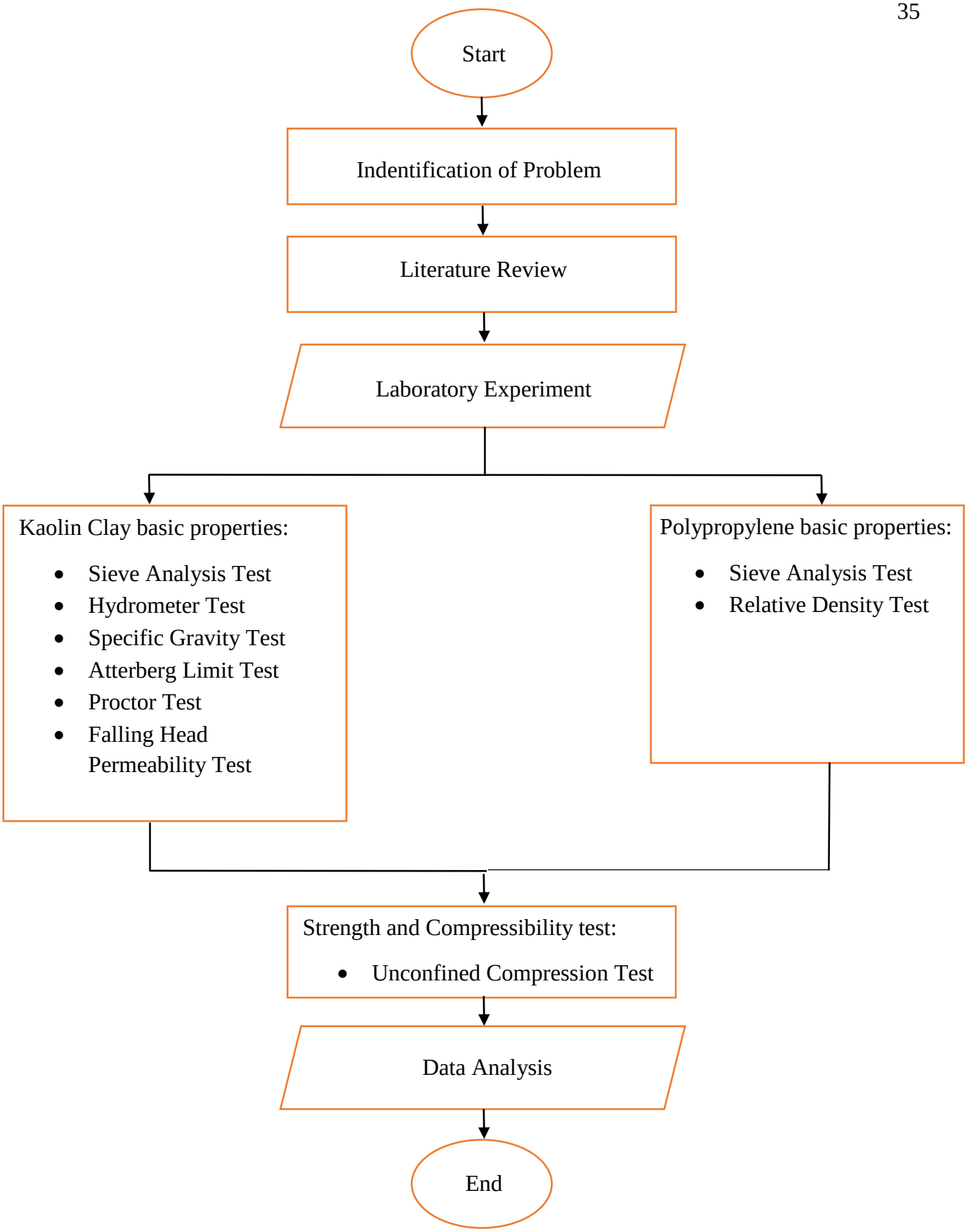

Figure 3.1: Flows of the Methodology

Based on the flow chart above, the basic properties of the material need to be conducted first before doing the main test. As mentioned before, there is only two basic properties test of PP plastic that can be done in the laboratory which is the Sieve Analysis test and Relative Density test. However, another basic properties of the PP plastic have been discovered through its manufacture. After the all of the test has been done, the laboratory work being proceed with the main test which is the UCT. All of the data was collected and then analysed, to obtain whether the kaolin clay is strong when being reinforced with PP column or not.

3.2 BASIC PROPERTIES TEST OF KAOLIN CLAY

3.2.1 Sieve Analysis

Sieve analysis can be characterized under the mechanical analysis which is to determine the various sizes of particle that present in a soil. There is two methods to determine the particle size distribution of soil which is by sieve analysis and hydrometer analysis. For typical sieve analysis, the diameter of the particle that was usually used was more than 0.075 mm while the diameter of particle that was used in the hydrometer analysis was smaller than 0.075 mm (Das *et al.*, 2014). In this study, the hydrometer analysis was used to determine the particle size distribution of the soft clay.

Sieve Analysis

Sieve analysis or Particle Size Distribution (PSD) can be defined as the grading or separation of the fine aggregate into particles of different size (Julien, 1995). To separate the different sizes of the particles, some practice has been done by passing the sand and aggregate through a set of sieves with opening of a different diameter. The size of sieve used were 5 mm, 3.35 mm, 1.18 mm, 0.6 mm, 0.3 mm, 0.15 mm and 0.063 mm. The percentage passing of each sieve can be calculated when the sieves activities has been carried out.

Normally, a particle can be classified as a fine aggregate is when the diameter of the particle passing the sieve of 4.75 mm and retain among 0.075 mm. But, according to